WASHINGTON DEPARTMENT OF ECOLOGY

ENVIRONMENTAL ASSESSMENT PROGRAM

FRESHWATER MONITORING UNIT

STREAM DISCHARGE TECHNICAL NOTES

STATION ID: 35D100

STATION NAME: Asotin Creek abv George Creek

WATER YEAR: 2011

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Introduction

Watershed Description

Asotin Creek is a tributary of the Snake River, flowing through the town of Asotin, in southeastern Washington. The area is semi arid, with land use being pasture/rangeland, forest, and cropland.

Asotin Creek contains summer steelhead, spring Chinook, and bull trout. All of these are listed as threatened under the Endangered Species Act (ESA).

Gage Location

The Asotin Creek above George Creek stream gage is located on the left bank one mile above the confluence with George Creek.

Table 1.

Drainage Area (square miles)	172 (Streamstats)
Latitude (degrees, minutes, seconds)	46° 19' 23" N
Longitude (degrees, minutes, seconds)	117° 08' 06" W

Discharge

Table 2. Discharge Statistics.

Mean Annual Discharge (cfs)	81
Median Annual Discharge (cfs)	51
Maximum Daily Mean Discharge (cfs)	327
Minimum Daily Mean Discharge (cfs)	28
Maximum Instantaneous Discharge (cfs)	370
Minimum Instantaneous Discharge (cfs)	25
Discharge Equaled or Exceeded 10 % of Recorded Time (cfs)	187
Discharge Equaled or Exceeded 90 % of Recorded Time (cfs)	32
Number of Days Discharge is Greater Than Range of Ratings	0
Number of Days Discharge is Less Than Range of Ratings	0

Note: Statistics displayed in Table 2 may not include values in which the predicted discharge exceeds the range of ratings.

Narrative

Eight discharge measurements were taken throughout the water year, ranging from 36 to 188 cfs. The January 4, 2011 (#38) discharge measurement was discarded due to the uncertainty associated with the presence of anchor ice.

Error Analysis

Table 3. Error Analysis Summary.

Logger Drift Error (% of discharge)	0.1
Weighted Rating Error (% of discharge)	9.2
Total Potential Error (% of discharge)	9.3

Rating Table(s)

Table 4. Rating Table Summary

Rating Table No.	4	5	6
Period of Ratings	5/18/08 to 5/17/11	5/18/11 to 7/12/11	7/13/11 to 7/20/11
Range of Ratings (cfs)	17 to 856	24 to 839	10.1 to 856
No. of Defining Measurements	21	7	0
Rating Error (%)	9.1	9.5	0

Rating Table No.	501		
Period of Ratings	7/20/11 to 12/30/11		
Range of Ratings (cfs)	24 to 839		
No. of Defining Measurements	7		
Rating Error (%)	9.5		

Rating Table No.			
Period of Ratings			
Range of Ratings (cfs)			
No. of Defining Measurements			
Rating Error (%)			

Narrative

The water year began under rating #4. In mid-May 2011, the rating shifted to #5, due to channel fill caused by seasonal run-off. In mid-July a tree fell across the channel ten feet below the staff. The stage-discharge relationship temporarily changed due to this event. Rating 6 estimates flow during this period. Near the end of July, the rating returned to the previous rating, prior to the tree falling into the channel.

Stage Record

Table 5. Stage Record Summary

Minimum Recorded Stage (feet)	1.11
Maximum Recorded Stage (feet)	3.23
Range of Recorded Stage (feet)	2.12
Number of Un-Reported Days	14
Number of Days Qualified as Estimates	49
Number of Days Qualified as Unreliable Estimates	0

Narrative

Unreported days were caused by ice-impacted data. The data set following an ice-impacted period is qualified as estimated data until a manual primary-gage-index reading is obtained. In mid-February, there were three data gaps of four hours each. These gaps were filled with data from Ecology's stream gage 35B150 (Tucannon R. at Marengo).

In mid-July, a tree fell across the channel directly downstream of the gage. The data from this point to the next discharge measurement in late July was qualified as an estimate. This was due to uncertainty in the stage/discharge relationship.

Modeled Discharge

Table 6. Model Summary

Model Type (Slope conveyance, other, none)	Slope Conveyance
Range of Modeled Stage (feet)	3.50 to 4.75
Range of Modeled Discharge (cfs)	440 to 856
Valid Period for Model	WY 2011
Model Confidence	1.9%

Surveys

Table 7. Survey Type and Date (station, cross section, longitudinal)

Type	Date
X-section/Longitudinal	10/19/2011

Activities Completed

Other than preventive maintenance, no significant activities were completed.